# CHALLENGING PE CHALLENGES: Integrating Developmental PE Physical Activity-based Challenges.
## *Interactive.*

**Introduction.**

The potential value of movement, physical activity, exercise, and organised games and sport are well documented. The value and benefits extend beyond medicinal aspects of health – disease/illness prevention and rehabilitation. The physical, emotional, intellectual, social and spiritual elements of wellness have become key features within our (Australian) schools. Physical Education – with its array of approaches – is, arguably, best placed to explicitly and intrinsically provide physical and movement-based educational and wellbeing value . The value and place of PE has been questioned and debated for as long as it's been a part of curricula and timetables. PE's greatest *challenge* remains – not in ensuring its own survival, yet in becoming more explicit about the educational outcomes it claims.

Arguably, adopting external challenges like those found through apps, online sources, workbooks, and often promoted by class-based franchise fitness approaches may do more (educational) harm than good. Challenge them. Examples are within.

The *PE Challenges* included here are my perspective on potential for placing PE's core – contextual human movement – front and centre in terms of educational value. They are examples of is possible – with consideration, planning and reflection – in making PE more than games and sport in the eyes of others. The Challenges have been used, adopted and adapted from **my** PE and PA based work with primary/elementary and secondary/high school students, mentoring PE teachers, recreational and elite athletes, neurodivergent and ageing people, those with health challenges and those looking for and creating a *better way.*

PE can be a challenge for us as teachers too. Many of us have a positive affinity for PA, exercise, games and sport and, thus, a biased internal and professional belief in the subject. As adults we are blessed with value in reflecting upon our participation, lessons learnt and benefits obtained (health, lifestyle, other). Yet, for many students this does not represent a reality for little more than a break from other classes or 'I do it because I have to'. Nor does PE represent similar educational value in some countries or specific areas so its time, place and resources are diminished.

This approach to (some) PE with challenge some of you - they have for me over 35 years of adapting them. If, like many school, you and/or your school follow a traditional curriculum design based upon activities/games and sports, or, less so, thematic-, concept- and or principle related curriculum approaches, the premise of the Challenges will raise questions and, importantly, options. They're not intended as a better way, simply another approach to making PE's purported benefits and outcomes explicit through a broader educational lens. Try one or a few, in your own context, anyway.

In my experience (IME) these challenges are best used as a progressively integrated project(s) as teacher and student skills (in the broadest sense), competencies, confidence and capacity are built in context. Some can effectively be used as isolated elements, hopefully with an illustrative and educational focus rather than a simple participatory explanation.

The challenges presented here have research-based support and are presented in a combined learning manner – text, images/video, and real participation.

Early 2024 I'll explore another Connection through sharing the Challenges via Social Media channels – initially as a Group resource.

Feel free to **contact me** to discuss the Challenges – their details, nuances, implementation, initiating Connections, suggestions and recommendations. Please acknowledge any source/use of the Challenges.

With kind regards,

*Paul Ford*

***Post-script.***

Concept Maps were created at different times with attendee question, examples and reflections.
Strategies and challenges for Connections were discussed.
Some slides have been corrected (4) or deleted (5) since the original presentation.
Health-related topics were not included, although I was asked about 4 specific Nutrition challenges I've used:

- *What do we eat for breakfast?*
  - *great for inter-class (ie 7 v 10 v 12) and cultural/international comparison/analysis*
- *Is that as healthy as the box looks?*
- *What skills bring that pizza do your door-step?*
  - *year 9 & 10 PE*
  - *broadest notion of "skills"*
- *What am I really eating – greedy ingredients!*

**The Slides:**

**S1**. Hooks: Onya & Karl Marx; and, value/necessity of exercise from 1711. 2020s - different context with different challenges.

**S2**. Title. Conference Details.

**S3**. The value **youth** and young adults see in and strive for via PA, EX and sport may not be what "we" see. Yet, challenges are a key element of value perception and goal-drive motivation (Gut et al 2022).

**S4**. Be Curious (reel, from Ted Lasso). My challenge to you - be curious about your students, and be curious about the premise, principles, potential and promise of these challenges.

**S5**. Presentation *Learning Objectives.*

**S6**. Ultimately, **evidence-based practice**/teaching (for Challenges) in schools/PE is a nexus of teacher expertise (professional & personal), "best" research evidence, and the values, experiences and expectations students/youth bring. Notably, teacher expertise necessarily includes insider knowledge of their students, practical and contextual constraints. OHS and issues regarding equipment, exercises* and programming may add perceived and real constraints, limitations and opportunities.

**S7**. These challenges are premised on the notion **physically active learning** is a multi, inter and transdisciplinary field (Mandelid 2023) of potential and promise – using movement, either through specific exercises, PA, structured exercise programs, games and sport, as the basis for broader explicit links and transfer of educational outcomes.

**S8.** The challenges can be adopted/adapted to **in-classroom** settings (Latino et al 2023) by all teachers – beyond the gym/s, fields, courts and stadium. Building self-efficacy (as competence and confidence) is a key component to these challenges.

**S9**. A summary of the **categories** of Challenges – none of them are as effective as one-offs.
- X-factor is the unknown – for us and students; and as allow for flexibility in what some of the challenges will bring
- The Challenges are introduced as such – "….a challenge in the way we will do aspects of (H&)PE; some will challenge some of you more than others for different reasons. I will challenge some of you to participate to your strengths [group/connections-related challenges], and challenge all of you to be courageous, and smart and brave in attempting to this you, we, haven't done before".
  - this sets some expectations and boundaries, and part outlines the semester/year
- I always start with the "Icon Challenge".
  - It's simple (initially), brief, safe (strengths/experience-based), and establishes a foundation for (a) introducing symbols/icons as text, (b) use in educational concept maps, and (c) some the Art (eg. designing a logo) and Science-related challenges (eg. symbols to represent subject-specific terminology)
- I will introduce "short bursts" of Movement challenges (particularly, initially, the Sit-Down-Stand-Up [**SDSU**], and Lay-Down-roll-Over [**LDRO**]) through 1-3 sessions to build student comfort, confidence and competence through familiarity (ie. multiple exposures/repetition) before implementing the full Challenge. Occasionally, we'll do the full Challenge a second time to collect scores/data/recordings for analysis/sharing etc

**S10**. The **Iceberg Principle** – significant background (beyond the surface) planning and thought can/will go into making the/your challenges enjoyable, worthwhile and educational. Our bodies and their ability to move (for most people) are amazing in what they can do, and adapt to

**S11. Characteristics** of the *Five Main Challenge categories* (see **S9**) – showing relationships/links
- Movement Challenges are the key/foundation to all other Challenges
- **Key**:
  - LM=Locomotor; NLM/BC = Non-locomotor or Body Control; MAN/OC = Manipulation Skills or Object Control
    - I begin to teach and reinforce (every session) these subject-specific terms from Grade 5
  - High Impact Strategies [Australian]: T = Teaching (HITS); WB = Wellbeing (HIWS); E = Engagement (HIES)
  - S&S = Scope & Sequence [Australian Curriculum]; S = Standards

**Important notes on the "Connections Challenge"**
- designed to introduce/engage/immerse students to the changing nature of 'spaces'
  - social-space, friend/acquaintance-space (ie. online), health-space/s, and work-spaces/places (ie. technology software/apps)
- they are a key unique aspect of the Challenges, providing opportunities to
  - ideally connect with
    - classes in your school of same and/or different year levels
      - different 'type' of school: government/state, religious/faith, independent/private
    - classes (same year level) in a similar school
      - same town/city
      - in another town – maybe rural vs regional vs urban/city
      - interstate and/or different time-zone

- in another country(s) (ie. global connections)
    - use real-time and/or recordable technologies to exchange challenges (and their data), ideas, and geographical/climate, and cultural (incl indigenous) insights
    - provide opportunities for individual students within your class (and the 'connected' classes to participate/perform roles to strengths and/or teacher-student-class negotiation
    - connect/link to other challenges
        - eg 1. each class "in" Connection may design their own icon/symbol to use to identify themselves through technologies/presentations/communications
        - eg 2. sharing "data" from challenges for statistical analyses & comparison (ie. numeracy challenges)
- The Connections aspects of the Challenges requires forethought, planning and communication
- You may choose not to do the Connections Challenge/s at all, or in a modified way that suits your context
    - IME, we too often talk about championing a global education and marketplace/workplace.
    - this Challenge explicitly sets out to make global connections "real"

**S12.** The C's – the basis of my teaching and coaching (and the **C**hallenges)
- building **C**ompetency and **C**onfidence as a foundation to **C**apacity, within **C**ontext (where the 3 circles overlap)
- mine in white; green = a PE teacher I mentor; red = H&PE teacher who has adopted and adapted the Challenges
- "meaningful PE" principles from:
    - Fletcher et al (2012), *Meaningful Physical Education: An Approach for Teaching & Learning*
    - Chen (2023), *Reconceptualizing Physical Education: A Curriculum Framework for Physical Literacy.*

**S13.** Samples and progressions of the *Icon Challenge*
- Progressing from "Known" to unknown; jig-saw and run-shoe can be interpreted in a number of accurate ways
- "Curious" (see S4) – progressive and worked examples of interpreting icons/symbols/texts from a Year 9 Fitness Subject (students hadn't been introduced to Challenges in previous years
- "Creative" – link to Art-related literacy skills [design]; used with Grad6 and Year 7-9 students
    - can be used as an "extra" task when you're absent

**S14.** Nike "shoe" (icon/logo) design detail

**S15.** *Movement Challenges* – key to all Challenges (ie. *PHYSICAL Education)*
- I've adapted to use a more inclusive phrase "a challenge/challenging task" rather than easy, moderate, hard/advanced/difficult/complex ["easy"/"basic" can be threatening/exclusive for some students]
- I use them as form of early formative assessment with new students/classes
    - handedness or preferred-hand (accurate 90-95%)
    - dominant foot (eg. balance/kicking)
    - general mobility and body control
    - problem-solving – own, or by observing/mimicking other students
- all provide procedural (see Exercise/Science) and data collecting/analysis opportunities for Connections (ie. predictions, comparisons)
- with the Sit-Down-Stand-Up (**SDSU**) Challenge I reinforce the idea as "all/**movement as problem-solving**"
    - "simple" examples – some or reflexive, some habitual, and others learnt and reflective:
        - getting from one position or place to another
        - getting there better or faster than someone else
        - evading an opposition player
        - moving/re-directing/stopping an object in space/time
        - scoring more than your opposition (or them scoring less than you)

**S16.** Movement behaviour (in sport) as problem-solving (Myszka et al 2023)

**S17.** *Sit-Down-Stand-Up* (**SDSU**) detail, and references
- additionally, used as a basis to teach young students (and staff in PD) how to encourage/support/instruct and older/larger family member how to get up (if stuck) from the floor – size, mobility, strength/capacity issues
- additionally, used as basis to introduce concept of "functional training" (training for a purpose/goal) to Year 9-10 students
- various assessment tasks can stem from the SDSU

**S18.** *Rising from the Floor in Older Adults* – not a new concept/challenge (Alexander et al 1997)

**S19.** *Movement Challenges* continued:
- LDRO (roll to Left/Right; start on Front/Back)
- **differentiation** tasks [high order thinking]

- o often, used in conjunction with Athletics – Grade 3+
- o introduction to Movement Analysis (terminology – from Grade 5)
  - ▪ note: jumps/hops/combinations are a part of **all** my practical classes
- o IME >50% of PE teachers cannot accurately differentiate between these tasks, particularly with the constraint of "not using a similar term to define…" (ie. "hopping = jumping from one foot to the other" [BTW, it doesn't]
  - ▪ Try it!
- o can be done individually or in groups
  - ▪ give plenty of basics and variations for them to experience, consider and construct template to analyse and differentiate
- o bases for assessment task/s – create a series/combination of jumps, hops, leaps and bounds using 10-15-20 foot contacts; create an instructional pamphlet/video; demonstrate; and teach to another student/group

**S20.** *Movement Challenges* continued:
- Body-weight squats (WB = Whole Body; LB = Lower Body; UB = Upper Body)
- Movement Analysis Activity 2
  - o Most Grade 5+ students do "get this"
  - o BTW, answer = "opposite-arm-to-leg" [force production and transfer; also, flattening the arc – accuracy]

**S21.** *Movement Challenges* continued:
- Gamification [with references] and scaffolding/differentiation principles/links
- Connections – setting others classes tasks, competitions; sharing/analysing comparative data

**S22**. *3A-Exercise Challenges*
- outline of contexts incl progressions, and future foundations
- Movement Challenge tasks often serve as the initial Exercise tasks/challenges I set students (ie. known to unknown)

**S23**. Classic definitions of PA, EX & PF - Caspersen et al (1985)
- "Exercise" can serve as noun and (transitive) verb
- an "exercise" can be used in different context (ie. describing a movement such as squat, lunge, pull/row, support, press/push, climb)

**S24.** The health-benefits of EX & PA may not be an effective outcome to justify and motivate students to participate in (in-class) exercise or fitness-related activities (Maltagliati et al 2022)
- how they feel ('affect') during, immediately after, longer after, accomplishment, group/social, problem-solved, completion, after days/weeks etc may be more effective
- a strong component of group exercise classes and music "benefit" with simple variations – prescribed vs chance/die, alternating exercises/movements; order of exercises/movements; use of sequences/sets

**S25**. 3B-Examples of *2 Exercise Challenges* used as class warm-ups (5-7 minutes, Term 2+):
- each used for all classes for a week
- students can start when enter
- note multiple exposure/repetition (as a HITS)
- also serves as explicit strategy/example for possible assessment task

**S26**. 3C-*Exercise Challenge* – a sample Literacy-related Challenge – based on warm-ups
- this was used for Year 8 & 9 classes
- note explicit tasks at top [in red]
- purpose of warm-up is taught/instructed repeatedly in all classes (later as questioning)
- can be used for an "extra" class in your absence [note: provide answers for substitute/casual-relief teacher]

**S27.** 3D-*Exercise Challenge* – showing *in-class* lesson planning links/*connections*
- used with various Year 9 classes
- school-specific template/terminology and structure used
- student **Fitcabularly** (an alphabetical vocabulary list of only fitness-related terms
  - o I usually start these in Grade 5+ with more general categories
  - o by years 9-10 I have them (preferably) differentiate into 4-5 different PE-related vocabularies

**S28.** *Language Matters* – PE Literacy (Godbout 2021 [Canada])
- for various (incl societal, habitual, colloquial) reasons PE, PA, EX, fitness and sport terminology 'meanings' vary
- see **S19** re teacher differentiation of basic terms such as jump, hop, leap, bound, step, run, skip, walk
- a simple way to:
  - o illustrate value of PE-specific terminology (in context/s)
  - o reduce burden of (new) terminology overload if students progress to more theoretical Yr 11 & Yr 12 PE

- in other words, normalise our PE-specific terminology and expectations around it

**S29 .** 3E-*Exercise Challenge* – Circuits
- sample 6 week circuit using 5 (leg) exercises
  - a real exercise circuit, not a random-stuff-every-session franchise-fitness-type circuit
- introduced T3 Year 7, refined by T2 Year 9
  o Yr 9s can explain & differentiate how *Training Principles* progression, overload and variety were used)
- part of the reason why I have jumps & hops (see **S19**), and squats and lunges – often disguised – in all practical classes and some in-classroom exercise/break breaks [a pre-learning strategy]
- differ from commercial/franchise approaches – see **S30-32**

**S30.** 3F-*Exercise Challenge* – Commercial context 1 (classes)
- main goal is to make money (I owned/ran a commercial gym for 5 years)
- often create and exchange (incorrect) terminology in a now non-regulated and non-standards policed landscape
- can shape student, parental and teacher perspective/perceptions
- consider using as foundation for developing student/consumer critical thinking skills

**S31.** 3G-*Exercise Challenge* – Commercial context 2 (purchase online programs/memberships)
- Fitribe – niche marketing strategy with image stereotyping
- Chair Yoga – false (fact) advertising regarding rate/energy expenditure

**S32.** 3G-*Exercise Challenge* – Commercial context 3 (from the App Store)
- *We Challenge You*: good luck starting the squat and push-ups challenges - with affective and safe technique, as a novice/beginner
  o poor example for students; yet good example to critically analyse
- *20-Day Leg Challenge* – good luck walking after 1-3 days (DOMS - is this likely +ve or -ve "affect"? See **S24**)
  o points as above

**S33.** 4A-PE *Numeracy Challenges*
- aim to **embed** numeracy (measurement, data collection & analysis, graphing etc) as a **normal part of PE**
  o it can be done in many ways, and doesn't need to be sophisticated
- I embed these as part of practical classes – closely related to current activity/topic/sport as focus
- endeavour to align with topic order of class' mathematic/s teachers
- note: need to be state/country context relevant
- normalises and establishes foundation for Exercise Science Challenges (see **S39-43)**
- 5x grade/year 5-8 examples given
  o *My Angles* – students take a still shot (from a video) of them performing a movement/skill, print it, draw dots for all major joints, rule straight lines between related dots/joint, and measure/define angles
    ▪ better students may compare, analyse describe changes in angel (ie. ROM) between 2 different frames/stills
    ▪ can be exchanged and "proofed'
  o *Triangluated Cubism* (with art, see **S34**) – students use/create outline drawing of themselves or of a favourite sport movement/skill/identity, create and draw 3-5 different size and shape triangles over it (a) illustrate/highlight how the angle within 1-4 of them add to 180', and (b) colour-in according to Cubism principles
  o *Am I Getting Better?* (see **S36***)* - derived from class-self assessment
  o *How Fast Am I?* – students measure and record peers over Flying-20m at the 3 different efforts (introduces concept of perceived effort [see **S39, S42**]) for walking or skipping or running [most choose latter]; with guided direction they calculate:
    ▪ *speed* in m/sec and km/hr; and *pace* in mins:secs/per 100m/1km
    ▪ groups/class averages are calculated [de-identify individuals]
      - can be shared and compared against other (see **Connections**) -
        o animals
        o year levels
        o schools, states; countries
      - any standardised test/activity can-be used
        o have had Year 1o students create, justify and validate their own
        o IME, simpler=better
  o *Can You Outrun a T-Rex?* – similar to above; show a relevant clip from Jurassic Park (I); discuss strategies for 'escaping'; measure flying 20m speed [and others, see **S35**]; investigate speed of T-Rex and other dinosaurs; do calculates (guide through worksheet); discuss results and review/reflect/alter 'escaping' strategies

**S34**. Some great examples of [digital] PE-related Cubism
- Permission no granted by recent schools to use Angles-related examples

**S35**. 4B-*How to Outrun a T-Rex* or *Can you Outrun a T-Rex*? – class worksheet
- again, data (and strategies) can be shared and compared, analysed and discusses

**S36.** Screenshot of (blank) *Self-Assessment* score-sheet
- derived from class self-assessment sheets I like to use
- progressively implement through Year 7 : T1 (2-3 criteria), adding 2-3 criteria each term
- students mark themselves on up to 3>10 areas on directed & negotiated scales (see examples)
  - one of which is to a specific-goal negotiated with me (usually behavioural)
- they use dots, or columns or lines to link the days to create a time-sensitive graphs.
  - They can analyse their changes in scores and goal achievement over time and great SMART goals and strategies to improve.
  - I "only" mark them (/10) on their honesty/accuracy of self-assessment, and improvement
- initially implemented this in 2005 with a very challenging Year 7 maths class (that I also taught PE and science)
  - was aligned with a graduated reward system for given points achieved
    - it worked unexpectedly super-well
- provides observable/visual (changing/improving?) data for parents, other staff and student conferences

**S37**. Outline of *SMART-C goal setting*
- many variants/templates available
- I add the "C" for **C**hallenging (to avoid underwhelming/under-stimulating/non-engaging goals by students)
- must allow time for students t work on these in class time

**S38**. *Monthly Fitness Challenges* - American Coaching Academy produces some good resources (mainly primary/elementary)
- I don't blindly implement them as they're random prescriptions
  - with grade-year 3-6 I include less activities/movements/exercises and ensure I include those we do/learnt in class
  - with years 7-10 I allow them some voice/agency in choosing/creating their activities/movements/exercises
    - years 9-10 (after explicit teaching, and class real-time class examples throughout Term 1) expected to demonstrate and justify *Training Principles* – individualisation, progression, overload & variety
  - great to share/implement with other classes/schools
    - can record and share/feedback = great connections
  - consider limiting to 8-10+ minutes - important to allow in class time

**S39.** 5A-*PE Exercise 'Science' Challenges (see **S40** and **S41**)*
- **evolved and adapted** from my experiences as a State sport Institute sport scientist, S&C and athletics coach, my own PE teaching teacher, and high-performance manager in 3 national level sports
- premise 1 = science is a process (ie. create/brainstorm, outline, predict, test, measure, evaluate, refine, re-work)
- premise 2 = use as exercise/sport science in practice
  - is/should not be about teaching watered-down year 11 & 12 concepts (ie. responses)
- embed in very simple forms from grade-year 6-7
  - progress/add layers each term/year > include randomised testing order for years 9-10
- be creative, yet systematic – be explicit about testing, measuring, evaluating and standardisation*
- are great learning tools
- 3 examples listed
  - $4^{th}$ – popular and eye-opening = *perceived effort running speeds* vs actual (see **S42**)
    - extensions from How Fast Am I and Can You Outrun a T-Rex in lower years

**S40.** *Thinking About and Doing Sport Science* (Woods & Davids 2022)

**S41.** *A Manifesto for Exercise Science* (Smith et al 2022)

**S42.** 5B-*Can Team-Sport Athletes Accurately Run at Submaximal Sprinting Speeds* (Darrall-Jones et al 2022)
- BTW, they certainly can – with explicit coaching, practice & experience
- great to share and discuss (de-identified) data across year-levels, schools and countries

**S43.** 5C-*PE Exercise 'Science' Challenges (see **S44**)* - the *Magic Mile*
- I begin this with grade/year 6+ (used since 1989)
  - since 2014 requires more individualisation& negotiation – voice/agency
- must give time each session; have provided lunchtime option thru Winter too

- good segway into Youth Physical Activity recommendations and levels via steps per day
- individual and collected/group data can be analysed over time; and shared/connected

**S44.** *The Daily Mile…* (Chesham et al 2018)

**S45.** *Challenges – 'Street Data' & Connections*
- students, their life's and activities and classroom/PE activities can be great sources for teaching, data and learning
- *Street Data* is an eye-opening and informative read (outside USA)
- consult/consider school/region policy
  - Safe spaces, privacy, taking images etc – important issues

**S46**. *Global Connections – especially with 2024 Olympics approaching*
- many schools have Olympic-related activities
- create a challenge or two – I challenge you!
  - share it with others

**S47.** Incomplete – *Stick (figure) drawings* (internet image only)
- various uses
- various challenges possible eg. exercise/circuit sequences

**S48.** Incomplete – *Stick starters* (internet image only)
- used for various Health & PE topics – literacy related
- embedded literacy prompts and possibilities.
- Stick stories - easily adapted to PE – created by teacher and/or student/s.

| Example | Blue | Red | Green | Yellow |
|---------|------|-----|-------|--------|
| 1 | student/client goal | activities/exercises | equipment | preferences |
| 2 | movement/exercise | major joints | Joint actions | contraction types |
| 3 | type(s) of fitness | activities | "client" | where live |

**S49.** Summary 1 - PE is a great tool to create so much from
- Challenges aren't simply cross-curricular tasks
- Challenges are real education tools based upon the foundation of PE – human movement and its exploration in context, incl the context of exercises (v), activities, games and sports

**S50**. Summary 2 - *Connecting the Challenges – How does it all work; how can it all work?*
- start small – implement in/across your own school/classes for a term, year, semester
- think and plan well ahead for Connections – to other schools